

Lesson Plan: The Water Cycle

3rd Grade Science

Science Standards:

Standard 1 - Science as Inquiry: The student will experience science as *full inquiry*. In the elementary grades, students begin to develop the physical and intellectual abilities of scientific inquiry.

Benchmark 1: The student will develop the skills necessary to do full inquiry. *Full inquiry* involves asking a simple question, completing an *investigation*, answering the question, and sharing the results with others.

Standard 4 - Earth and Space Science: The student will observe objects, materials, and changes in their environment, note their properties, distinguish one from another, and develop their own explanations making sense of their observations.

Benchmark 1: The student will develop an understanding of the properties of *earth materials*.

Indicator 3: the student describes *properties* of water and process of the water cycle.

Music Standards:

Standard 1: Singing, alone and with others, a varied repertoire of music.

Benchmark 1: The student sings independently, on pitch, and in rhythm, with appropriate timbre, diction, and posture, and maintains a steady tempo [beat].

Objectives:

Through the use of creativity, music, and an experiment, students will grasp an understanding of the basic stages of the water cycle: evaporation, condensation, precipitation, and accumulation. Students will also gain an understanding of the different states of water and the effects of heating and cooling water. At the end of this lesson, students should understand the terms related to the water cycle and be able to relate the water cycle to their own experiences.

Materials:

- Markers
- Cut-outs of raindrops, waves, clouds, and steam
- Bulletin board with a sun, lake, water cycle arrows, and water cycle terms and definitions
- Burner

- Glass beakers filled $\frac{1}{4}$ full with water
- Ice water
- Mirrors
- “The Water Cycle” by John Riggio
- Projector slide with song lyrics

Lesson Description:

Students will learn about the water cycle by creating a bulletin board diagram and learning the terms presented on the diagram. To further grasp an understanding of the water cycle, students will then be able to participate in a water cycle experiment. This experiment will allow students to see water evaporate as steam and create precipitation when it comes in contact with a cooled mirror. After the experiment, students will then consolidate their understanding of the water cycle by singing “The Water Cycle” by John Riggio. Through the use of kinesthetic learning activities, students will recognize the importance of the water cycle in their daily lives.

Lesson Procedure:

Introduction: Students are introduced to the concept of the water cycle by creating a water cycle diagram and learning about evaporation, condensation, precipitation, and accumulation.

- Students are given a pre-cut raindrop, cloud, wave, or steam “squiggle.”
- Give students time to decorate and write their name on the cut-out.
- Call students up to the pre-prepared bulletin by cut-out group.
- Help students place their cut-out on the bulletin board to create a water cycle diagram.
- Teach students about the water cycle and explain evaporation, condensation, precipitation, and accumulation.

Main Activity: Students explore the process of the water cycle by doing an experiment that will allow them to grasp the concept of evaporation and precipitation.

- Prepare the stations by bringing a beaker filled $\frac{1}{4}$ full with water to a boil and placing the mirrors in ice water.
- Split students into partners and group these partners into small groups.
- Assign small groups to a table with an adult and the prepared experiment materials.
- Allow students to observe steam rising from the boiling water.
- One partner group at a time, have the students take a mirror out of the ice water and hold it above the steam. **WARNING:** be sure that the

- student's hands are a safe distance from the steam.
- Have students observe as the steam accumulates into drops of water on the mirror.
- Ask students questions about the experiment and explain how heating and cooling water causes evaporation and precipitation.

Closure Activity:

- Project the lyrics to "The Water Cycle" by John Riggio for the students to see.
- Review the meaning of evaporation, condensation, precipitation, and accumulation.
- Teach the students the song and incorporate hand motions.
- Sing the song with students and do the hand motions.

Verification:

To ensure that the students have fully grasped the concept of the water cycle, review the material and the experiment. Following the review, provide students with a diagram of the water cycle and allow them to choose words (evaporation, condensation, precipitation, and accumulation) from a word box and place the words in the proper spot in the diagram. If desired, students can be tested more extensively about the definitions of the water cycle terms and the effects that heating and cooling water have.